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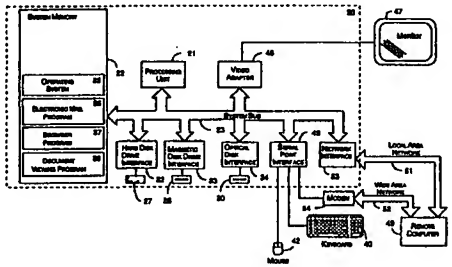

(57) Abstract

Publishing content associated with an electronic file attached to an electronic mail message by executing instructions contained in the electronic mail attachment and accessing the content at a remote computer server identified by the attached file. The attached file includes computer-executable instructions, such as a computer program or script, which include an identifier for a remote server connected to a distributed computer network. This identified remote server typically hosts a web site containing content intended for viewing by the recipient of the electronic mail message. In response to launching the attached file of the electronic mail message with a viewer program, a browser program can be opened to enable the recipient to view the content of the identified remote server, typically a web site on an intranet or the global Internet. This supports the communication of electronic content by using an electronic mail message to transport an electronic file attachment having instructions that, when executed by the recipient's computer, enable the recipient to view the electronic content by accessing a server computer connected to distributed computer network.

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METHOD AND SYSTEM FOR PUBLISHING AN ELECTRONIC FILE ATTACHED TO AN ELECTRONIC MAIL MESSAGE

TECHNICAL FIELD

The present invention is generally directed to viewing content associated with an electronic file attached to an electronic mail message. The invention supports publication of content associated with an electronic file attachment by launching a file attachment, thereby resulting in the execution of computer instructions that launch a browser program which displays the content at a web site identified by the file attachment.

BACKGROUND OF THE INVENTION

Electronic mail programs are used by business and residential users to communicate information contained within the body of an electronic mail message or attached as an electronic file or document to the electronic mail message. For example, a user can save a business report as an electronic document prepared by a word processing program and attach this electronic document to an e-mail message for distribution to designated recipients. Another representative example is the transmission of an electronic mail message having an attached multi-media presentation file, such as a Microsoft "POWERPOINT" slide show, to designated recipients at physically remote locations. Users of electronic mail programs commonly use electronic mail messages as a carrier mechanism for forwarding electronic files or documents via a computer network to one or more designated recipients.

Although the combination of an electronic mail program and a distributed computer network provides an efficient communication system for communicating with multiple parties, the capacity of this electronic mail system to support communications can be degraded by the transfer of messages having large-sized attachments. Electronic mail

users observe this degradation of electronic mail system performance as a delay in completing the transmission or reception of a message having a large file attachment. This is especially evident when accessing electronic mail remotely over low speed modem connections. Also, system administrators view the exchange of attached electronic files via the electronic mail system as a storage capacity issue because communication of these large file attachments requires electronic mail servers having sufficient capacity to store both messages and attachments for system users.

In view of the foregoing, there is a need for providing the recipient of an electronic mail message with the ability to access electronic content without forwarding this content as an attached file or document of an electronic mail message. There is a further need for communicating the content of a large electronic file or document to a remote recipient without forwarding the entire content as an attachment to an electronic mail message. The present invention solves these and other needs of the prior art by publishing content at a web site viewable by an electronic mail recipient in response to accessing an attached file of an electronic mail message transmitted to that recipient.

SUMMARY OF THE INVENTION

The present invention provides a computer-implemented method and system for communicating content intended for delivery to a recipient of an electronic mail message having an attached electronic file. The attached electronic file can be accessed in response to an input signal issued by an input device, such as a keyboard or pointing device, that is manipulated by the recipient of the electronic mail message. The identity of a remote server computer, such as a web site on an intranet or the global Internet, can be obtained in response to accessing the attached electronic file. The remote server computer publishes the content intended for communication to the email message recipient. This content can be displayed to the recipient by using the identity to establish a connection with the remote server. By providing the recipient of the electronic mail message with an automated mechanism for viewing the content at this identified remote server computer, the present invention eliminates the need to store this content within the attached file itself.

More particularly described, the present invention supports the communication of electronic content by using an electronic mail message to transport an electronic file attachment having instructions that, when executed by the recipient's computer, enable the recipient to view the electronic content by accessing a server computer identified by the electronic file attachment. In response to an input signal transmitted by a user's manipulation of an input device, the electronic file attachment is accessed by an electronic mail program. This electronic file attachment is typically opened for viewing within the viewing window of a document view program. For one aspect of the invention, the electronic file attachment contains a limited amount of content, such as a text-based instruction message, for viewing by the recipient within the viewing window. For example, a representative instruction message offers the recipient instructions on how to access a larger set of content by launching the electronic file attachment. In response to an input signal for launching the electronic file attachment, a browser program is launched to access content at a remote server computer identified by the attached file. This results in an automated transition from the electronic mail program environment to the browser program environment to support viewing of the content hosted at the remote server computer.

Prior to the advent of the present invention, a user of an electronic mail program would have forwarded content of interest to the recipient of the electronic mail message within the body of an electronic mail attachment. The present invention enables the user to post content at a remote server computer and to send an electronic mail attachment containing instructions (rather than lengthy content) that command the recipient's computer to identify and access this content at the remote server computer. By accessing the electronic mail attachment, instructions contained in this attached file are executed to support the presentation by a browser program of content maintained at the identified remote server computer. The attached file can include an identifier, such as an address or link for a web site, that identifies a storage mechanism other than the electronic mail attachment for the content intended for delivery to the recipient of the electronic mail message.

Advantageously, the present invention does not suffer from the performance problems of the prior art. Electronic content intended

for delivery to the recipient of a electronic mail message can be communicated by a web site identified by an electronic mail attachment rather than by storing this content within the electronic mail attachment itself. The information publication power of a distributed computer network, such as a corporate intranet or the global Internet, is leveraged by enabling a recipient of an electronic mail message to access an attached file and to "jump" from the electronic mail program to content hosted at a remote computer site and viewable by a browser program. In this manner, the storage resources of an electronic mail system are conserved because the present invention eliminates the need to send lengthy file attachments with electronic mail messages to communicate information to the recipients of such messages.

The various aspects of the present invention may be more clearly understood and appreciated from a review of the following detailed description of the disclosed embodiments and by reference to the appended drawings and claims.

DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram illustrating the components of a computing environment that supports the operation of an exemplary embodiment of the present invention.

Fig. 2 is a logical flowchart diagram illustrating the tasks completed by an exemplary embodiment of the present invention.

Fig. 3 is a logical flowchart diagram illustrating the steps of a method for accessing an electronic mail attachment in accordance with an exemplary embodiment of the present invention.

Fig. 3A is a display screen illustrating a representative electronic mail message having a file attachment.

Fig. 4 is a logical flowchart diagram illustrating the steps of a method for publishing content associated with an electronic mail attachment at a web site in accordance with an exemplary embodiment of the present invention.

Fig. 4A is a display screen of message content of an electronic mail attachment presented by a document viewing program in accordance with an exemplary embodiment of the present invention.

Fig. 4B is a display screen showing an initial view of message content of an electronic mail attachment presented by a browser program.

Fig. 5 is a logical flow chart diagram illustrating the steps of a method for opening a web site link identified by an electronic mail attachment in accordance with an exemplary embodiment of the present invention.

Fig. 5A is a display screen of representative content presented by a browser program in response to opening a web site link associated with an electronic mail attachment in accordance with an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

The present invention provides a convenient and effective mechanism for communicating information with the assistance of an electronic mail system without sending this information as an attachment to an electronic mail message. A user of an electronic mail program can attach an electronic file containing a set of instructions, such as a computer routine or script, to an electronic mail message prior to transmitting that message to designated recipients. In response to receiving this electronic mail message, a recipient can open and view the message within his or her electronic mail program. Although this message typically contains a message body presenting text-based content, the message also includes an indicator indicating the presence of an electronic file attached to the message. In response to the recipient taking an action to access this attached file, the set of instructions contained in this file are executed by the recipient's computer. The execution of these instructions results in the launch of a browser program for viewing content at a web site identified by the attached file and connected to a distributed computer network, such as an intranet or the global Internet.

The browser program can display the content for a predetermined web site identified by an address provided to the browser program in response to execution of the instruction set maintained by the electronic mail attachment. For example, this address can be a uniform resource locator (URL) or location identifier for a particular page of content at the predetermined web site. In this manner, accessing an

electronic file attached to an electronic mail program results in the automated presentation of content posted at a web site identified by that electronic file. From the view of the electronic mail message recipient, this transition between the electronic mail program environment and the browser program environment is completed without manual interaction.

A user of an electronic mail program can avoid attaching a large electronic document for transmission via an electronic mail message by relying upon the present invention. Rather than attach a large document to the electronic mail message, the user can attach an electronic file containing an instruction set that, when executed by a computer, results in the presentation of content at a web site identified by that instruction set. The content represented by a large document, such as a multi-media presentation document, can now be communicated by a web site identified by an attached file of an electronic mail message rather than as a lengthy document attached to the electronic mail message. Advantageously, the present invention supports the efficient and convenient communication of information while avoiding the delay and storage issues associated with the transmission of a large document as an attachment to an electronic mail message.

Turning now to the drawings, wherein like elements are represented by like numerals throughout the several drawings, Fig. 1 and the following discussion are intended to provide a brief, general description of a suitable computing environment in which the invention may be implemented. While the invention will be described in the general context of an electronic mail program and a browser program that runs on a personal computer, those skilled in the art will recognize that the invention also may be implemented in combination with other program modules. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, and the like.

With reference to Fig. 1, an exemplary system for implementing the invention includes a conventional personal computer 20 having a processing unit 21, a system memory 22, and a system bus 23 that couples the system memory to the processing unit 21. The personal computer 20 further includes a hard disk drive 27, a magnetic

disk drive 28 and an optical disk drive 30, e.g., for reading a CD-ROM disk 31 or to read from or write to other optical media. The hard disk drive 27, the disk drive 28, and optical disk drive 30 are connected to the system bus 23 by a hard disk drive interface 32, a magnetic disk drive interface 33, and an optical drive interface 34, respectively. The drives and their associated computer-readable media provide nonvolatile storage for the personal computer 20. Although the description of computer-readable media above refers to a hard disk, a flexible disk, and a CD-ROM disk, it should be appreciated by those skilled in the art that other types of media which are readable by a computer.

A number of program modules may be stored in the drives and the system memory 22, including an operating system 35, an electronic mail program 36, a browser program module 37, and a document viewing program 38. A user may enter commands and information into the personal computer 20 through a keyboard 40 and pointing device, such as a mouse 42. These input devices are often connected to the processing unit 21 through a serial port interface 46 that is coupled to the system bus 23, but may be connected by other interfaces, such as a game port or a universal serial bus (USB). A monitor 47 or other type of display device is also connected to the system bus 23 via an interface, such as a video adapter 48. In addition to the monitor, personal computers typically include other peripheral output devices (not shown), such as speakers or printers.

The personal computer 20 may operate in a networked environment using logical connections to one or more remote computers, such as a remote computer 49. The logical connections depicted in Fig. 1 include a local area network (LAN) 51 and a wide area network (WAN) 52. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the global Internet. When used in a LAN networking environment, the personal computer 20 is connected to the LAN 51 through a network interface 53. When used in a WAN networking environment, the personal computer 20 typically includes a modem 54 or other means for establishing communications over the WAN 52, such as the Internet. The modem 54, which may be internal or external, is connected to the system bus 23 via the serial port interface 46.

An exemplary embodiment of the present invention will be described in connection with representative examples of an electronic mail program, a document viewing program, and a representative browser program. For this exemplary embodiment, the electronic mail program is Hewlett-Packard's "OPENMAIL" program and the associated document viewing program is Inso Corporation's "QUICK VIEW PLUS" program. The browser program is the "NETSCAPE NAVIGATOR" browser distributed by Netscape Communications Corporation. Those skilled in the art will appreciate that other electronic mail, document viewing, and/or browser programs can be used to implement alternative embodiments of the present invention. For example, any browser program that can communicate with and display contents of a web site could be used. Consequently, the present invention is not limited to the components of the representative exemplary embodiment described below in connection with Figs. 2-5.

Fig. 2 is a logical flowchart diagram that illustrates the primary tasks completed by an exemplary embodiment of the present invention. Specifically, Fig. 2 illustrates the tasks of a computer-implemented method 200 for presenting information at a predetermined web site in response to accessing an electronic file attached to an electronic mail message. Turning now to Fig. 2, the computer-implemented method 200 begins at the START step 205 for a selected electronic mail message having an attachment represented by an electronic file. The electronic mail message can be presented to a recipient on the display screen of a computer in response to operation of the electronic mail program, such as Hewlett-Packard's "OPENMAIL" program. The user is typically alerted to the existence of an electronic file attached to the electronic mail message by an indicator, such as an icon or text-based alert, in the tool bar or body of the electronic mail message. The attached electronic file contains a set of instructions, such as a computer program or script, rather than a lengthy document readable by a word processing or multi-media presentation program. This attached file contains the identity of a web site that maintains content intended for viewing by the recipient of this electronic mail message. The attached file is preferably smaller in size than the typical large document of a word processor program or a multi-media presentation program.

In decision block 210, an inquiry is conducted to determine whether an input signal has been received to view the file attached to the electronic mail message. If the response to this inquiry is negative, the "NO" branch is followed to step 205 and the process begins anew. Otherwise, the "YES" branch is followed from step 210 to step 215.

In step 215, the script associated with the attached file is executed by completing the instructions of the script. This execution of an instruction set, which is typically completed by the user's computer, results in the launch of a browser, such as the "NETSCAPE NAVIGATOR" browser program, and the identification of a predetermined web site for viewing with the browser program. In addition, the script can include limited content, such as a message containing instructions to aid a user's viewing of the content associated with the attached file. For the exemplary embodiment, the script is implemented by a combination of JavaScript instructions and HyperText Markup Language (HTML) code.

In step 220, the content of a web site identified by the attached file is displayed to the user within the environment of the browser program. The web site can be hosted by a server connected to a distributed computer network, such as an intranet or the global Internet. The method 200 terminates at the END step 225.

In this manner, the exemplary embodiment enables a recipient of an electronic mail message having an attached file to access content published at a web site that is identified by the file rather than loading and opening an electronic mail attachment containing that content. The user experiences a transition from the operating environment of the electronic mail program to the browser program in response to accessing the attached file.

Turning now to Fig. 3, which illustrates the tasks completed at the decision block 210, an inquiry is conducted at step 305 to determine whether an input signal has been received by the electronic mail program to access a file attached to an electronic mail message. As shown in Fig. 3A, a display screen 320 presents a representative electronic mail message containing a header 325, a distribution list 330 identifying intended recipients, a text-based message body 335, and an electronic file 340 attached to the electronic mail message. The header 325 identifies the subject "Network Operations Solutions Group" of the

electronic mail message and the creator or sender of the message, "Gary J. Dennis." The distribution list 330, identified as item 1 of the electronic mail message, is a list of intended recipients for the electronic mail message. The message body 335, identified as item 2, contains a message for viewing by the intended recipients upon receipt of the electronic mail message. The electronic file 340 is attached to the electronic mail message and is identified as item 3. For the representative example, the electronic file 340 is a binary file identified by the file name "NOSGJU~1.HTM." To access the attached file 340 in step 305, a user can position a position indicator, such as a cursor, proximate to the file 340 and transmit an input signal via an input device, typically by double-clicking a button on a pointing device, such as a mouse.

If the response to the inquiry in step 305 is negative, the "NO" branch is followed to step 205 (Fig. 2), which is the entry point to the decision block 305. In response to receiving an input signal at the electronic mail program to access the attached file in step 305, the "YES" branch is followed to step 310. In step 310, a document viewing program, such as Inso Corporation's "QUICK VIEW PLUS" program, is launched to display content, if any, contained within the attached file, such as the electronic file 340. The attached file typically contains a limited amount of data for presentation to the user via the document viewing program. For example, the attached file can contain a text-based message, such as an instruction message defining user instructions for viewing the remaining content associated with that file. For the exemplary embodiment, the content available for viewing by the document viewing program is HTML-coded content maintained in the attached file 340. Consequently, the attached file 340 includes an ".htm" extension to enable the preferred "QUICK VIEW PLUS" program to recognize and operate on the HTML-coded content of that file.

Turning now to Fig. 4, which illustrates the tasks associated with execution of the script for the attached file during step 215 (Fig. 2), the content, if any, of the attached file is displayed to the user by the document viewing program in step 405. The "viewable" content contained in the attached file is presented on the display screen of the computer to the user in response to receiving an input signal to view the attached file in step 210 (Fig. 2). The electronic mail program responds

to this input signal by launching a document viewing program, which can read the content contained in the attached file and display that content in a viewing format recognizable by the user. For the exemplary embodiment, the content of the attached file is a limited-size, text-based message containing instructions for viewing a much larger data set associated with the attached file. A representative example of limited "viewable" content contained in the attached file is shown in Fig. 4A as a user instruction message within the environment of a document viewing program.

Turning briefly to Fig. 4A, a display screen 450 presents a view of content contained in the file attached to the electronic mail message and displayed in the environment of a document view program, such as the "QUICK VIEW PLUS" program. The message content of this attached file is presented as a user instruction message 455 within the body of the display screen 450. For the representative example of an instruction message, the text-based content advises that selection of the launch control of the document view program will result in the automatic loading of the "NOSG Newsletter". The "NOSG Newsletter" is maintained at a web site, rather than stored within the file attached to the electronic mail message. Consequently, the instruction message further advises the user that this loading operation will not work if his or her computer is not configured for operation with both a document viewing program and a browser program, such as the "QUICK VIEW PLUS" and "NETSCAPE NAVIGATOR" programs. The computer user must also have access to web sites via the browser program and a connection to the computer network. The instruction message further advises that the file manager of the operating system for the computer can be used to locate the file attached to the electronic mail message and to launch that file in the event that the computer is not configured to use the specified document viewing and browser programs.

Although the exemplary embodiment relies upon the storage of limited message content and a script within the file attached to the electronic message to assist a user's transition from the electronic mail program environment to a browser program environment, those skilled in the art will appreciate that other types of content can be placed in the attached file. For example, the viewable content described above as an instruction message merely instructs the electronic mail recipient to

launch the file for viewing at a web site. However, any content maintained within the file attached to the electronic mail message preferably should have a limited storage size to obtain the advantages offered by the present invention over the prior communication of large documents or files via electronic mail systems. Indeed, there is no requirement to place viewable content within the attached file for the electronic mail message. The absence of any viewable content for the attached file, however, may result in user confusion because launching the document viewing program in response to accessing an attached file having no viewable content would not satisfy the user's expectation of content within the viewing area of the document view program.

The user interface of the document viewing program shown in the display screen 450 of Fig. 4A includes a launch control 460 available in the toolbar of this program. In response to the user selecting the launch control 460, an input signal is transmitted to launch the attached file of the electronic mail message. For the representative example, the attached file named "NOSGJU~1.HTM" is "launched" in response to a user's selection of the launch control 460 of the document viewing program.

Returning to Fig. 4, in decision block 410, an inquiry is conducted to determine whether the document view program has received an input signal to launch the attached file of the electronic mail message. If the user has not selected the launch control 460, as shown in the display screen 450 of Fig. 4A, the "NO" branch is followed to step 405 and the process begins anew. Otherwise, the "YES" branch is followed from step 410 to step 415 and the execution of instructions of the script contained in the attached file continues in step 415. A browser program is launched in step 415 in response to execution of the script instructions.

As shown in Fig. 4B, the launching of the browser program in step 415 results in an echoing of the message content contained in the attached file within an initial viewing window of the browser program. An initial window 470 is opened by the browser program in response to the instructions of the script for the attached file of the electronic mail message. The initial window 470 is quickly opened and closed by the browser program, however, before the user has an opportunity to actually view any content associated with this window. Although the

initial window 470 contains a file identifier 475 and a message 480, the user preferably does not have an opportunity to view this information prior to a closing of the initial window. Another window is quickly opened by the browser program, however, to present the lengthy content associated with the attached file, namely the content hosted at the web site.

Those skilled in the art will appreciate that an embodiment of the present invention can be implemented without opening an initial window that echoes the HTML-coded content of the electronic file attached to the electronic mail message. By this alternative embodiment, the initial window of the browser program could instead present content maintained at a web site hosted by a remote server on a distributed computer network.

Turning again to the logical flowchart diagram of Fig. 4, in step 420, the execution of instructions in the attached file results in providing the browser program with an identifier, such as a hyperlink or address, for a web site hosted by a remote server connected to an intranet or the global Internet. In response to the identifier for this web site, the browser program can open a window presenting content maintained by that identified web site, as described in more detail below with respect to Fig. 5. For example, if the identifier provided by the attached file is a URL or locator identifier, the browser program will establish a connection to the remote server that hosts the identified web site based on the address provided by that identifier. In this manner, the recipient of the electronic mail message can view the content of a web site by accessing an electronic file attached to an electronic mail message.

Fig. 5 is a logical flowchart diagram illustrating an exemplary method for displaying content associated with an attached file for an electronic mail message. Turning now to Fig. 5, which illustrates the tasks completed in step 220 (Fig. 2), a link to an identified web site is opened in step 505 by the browser program. The address or identifier for this link is provided to the browser program in response to opening the electronic file attached to the electronic mail message. This link typically identifies a particular page of a selected web site for viewing by a recipient of the electronic mail message. In step 510, the content of the identified web site is displayed within a view window of the browser program. A recipient of the electronic mail message having the attached

file can access and manipulate the web site content in a manner consistent with the operation of a conventional browser program.

Fig. 5A illustrates a display screen for a browser program having a view window presenting content associated with the attached file of an electronic mail message. Turning now to Fig. 5A, a display screen 515 includes an identifier 520 and a view window 525. The identifier 520, shown as the location "://nosg.bst.bls.com/newsletter/nosg/December/index.html," defines the address for a particular page of a web site that is available for viewing by the browser program. The view window 525 presents the content associated with the particular page of the web site identified by the identifier 520. For the representative example, an electronic newsletter, entitled "NOSG News," is shown within the view window 525 of the browser program. The presentation of the newsletter via a web site, rather than as an electronic document directly launched by an electronic mail program or a document viewing program, is advantageous because the electronic mail attachment containing the web site identifier can be quickly loaded by a recipient while conserving the storage capacity of an electronic mail system. A newsletter such as the representative example would likely have been a file of a megabyte or more of data that would have traversed an electronic mail network. With the present invention, a smaller file, typically less than 1-2 kilobytes, can be used to route a mail user to a web site.

Upon viewing the content available at the web site via the browser window, the user can exit the view of this content by closing the browser window. For the exemplary embodiment, closing this browser window can result in the display of the underlying view window of the document viewing program. The user can close this view window to return to the electronic mail program.

Table I provides a listing of a representative script for an electronic file that can be attached to an electronic mail message to support the operation of an embodiment of the present invention.

Table I

```
<head><script LANGUAGE="JavaScript" FOR="window"
EVENT="onload()">
<!--
window.open('http://nosg.bst.bls.com/newlett/K2/index.html')
window.close()
//-->
</script>
<title>This page will AutoLoad Network Operations Solutions Group
Newsletter</title>
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launched from Quick View Plus this page will automatically load the
latest </big></big></strong></p>
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Bold" color="#FF0080"><big>NOSG
Newsletter</big></font></big></big></strong></td>
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<td bgcolor="#808080"><big><font color="#004080"><strong>If your
PC is not configured to use Quick View Plus and Netscape, then this will
not work!   You must save this page to your hard drive and then
use file manager to locate this file and launch
it. .</strong><font></big></td>
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</html>
```


The representative script shown in Table I contains two instruction sets, a script containing JavaScript language instructions (highlighted in bold print) and an HTML-coded instruction section defining the text of an instruction message. The script instructions, executed by the computer, support the opening of a view window of the browser program to present the content of an identified web site. This operation is distinguishable from the opening of a hyperlink within the body of an electronic mail message. The HTML-coded content can support the presentation of the instruction message by the document view program, prior to launching the browser program to access content at the identified web site, and the brief display of this message within the initial view window of the browser program.

Referring to Table I, the header portion of the content of the electronic mail attachment is positioned between a pair of <head> HTML tags. The header contains the JavaScript language commands, highlighted in bold print, and positioned between a pair of <script> HTML tags. In response to executing the JavaScript commands, the browser program opens an additional view window to display the content published at the web site identified by "http://nosg.bst.bls.com/newlett/K2/indexed.html". The next JavaScript command closes the browser window containing the initial instruction message from the viewer program associated with the electronic mail system. This leaves the browser with one open window containing the selected web site page. For this representative example, this address provides a link to the "Network Operations Solutions Group's NOSG News."

The remaining portion of the attached file is represented by an HTML-coded instruction section placed between the <body> HTML tags. This section represents the user instruction message presented to the user in response to accessing the attached file and launching the document view program. This instruction message is also briefly echoed within an initial window of the browser program in response to the transition between the document view program and the browser program, as noted above. The HTML codes provide format instructions for displaying the instruction message within a view window. The representative instruction message, as shown in Fig. 4A, is

When launched from Quick View Plus this page will automatically load the latest NOSG newsletter. If your PC is not configured to use Quick View Plus and Netscape, then this will not work! You must save this page to your hard drive and then use File Manager to locate this file and launch it.

It will be appreciated that the variety of instructions and/or messages can be included within an electronic file that is attached to an electronic mail message. The present invention is not limited to the representative example shown in Table I. Nevertheless, Table I illustrates that the storage size for the preferred electronic file attachment is small when compared a conventional word processing or multi-media document that might otherwise be attached as a file to an electronic mail message. Consequently, the transition from an electronic mail program environment to a browser program environment in response to accessing an electronic mail attachment provides an efficient and effective mechanism for accessing content associated with the attached electronic file.

Alternative embodiments will become apparent to those skilled in the art to which the present invention pertains without departing from its spirit and scope. Accordingly, the scope of the present invention is defined by the appended claims rather than the foregoing description and drawings.

CLAIMS

I claim:

1. A computer-implemented method for communicating content intended for delivery to a recipient of an electronic mail message having an attached electronic file, comprising the steps of:

responsive to an input signal, accessing the attached electronic file;

obtaining the identity of a remote server computer hosting the content in response to accessing the attached electronic file;

displaying the content intended for delivery to the recipient of the electronic mail message by using the identity to establish a connection with the remote server computer.

2. The computer-implemented method of Claim 1, wherein the step of displaying the content intended for delivery to the recipient of the electronic mail message comprises the steps of:

launching a browser program;

providing the browser program with the identity of the remote server computer hosting the content;

establishing a connection by the browser program with the remote server computer;

displaying the content within a viewing window of the browser program.

3. The computer-implemented method of Claim 1, wherein the remote server hosts a web site containing the content intended for delivery to the recipient of the electronic mail message and the attached electronic file only contains instructions for accessing the content at the web site.

4. The computer-implemented method of Claim 1 further comprising the step of displaying a message contained in the attached electronic file in response to receiving the input signal.

5. The computer-implemented method of Claim 4, wherein the step of displaying a message contained in the attached electronic file comprises the steps of:

launching a document viewing program;

displaying the message within a viewing window of the document viewing program

6. The computer-implemented method of Claim 5, wherein the message of the electronic file attachment comprises a text-based instruction message comprising instructions to aid the recipient's access to the content maintained by the remote server computer.

7. The computer-implemented method of Claim 4, further comprising the step of opening a browser program by launching the file attachment from a viewer program to access the content at the remote server computer in response to JavaScript commands contained in the electronic file attachment.

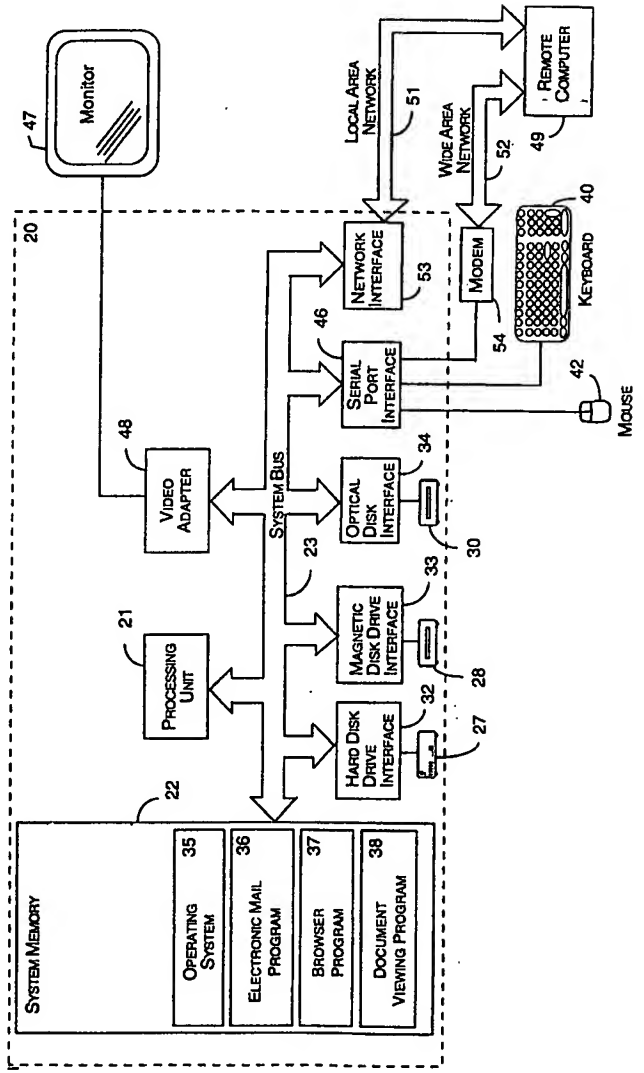

FIG. 1

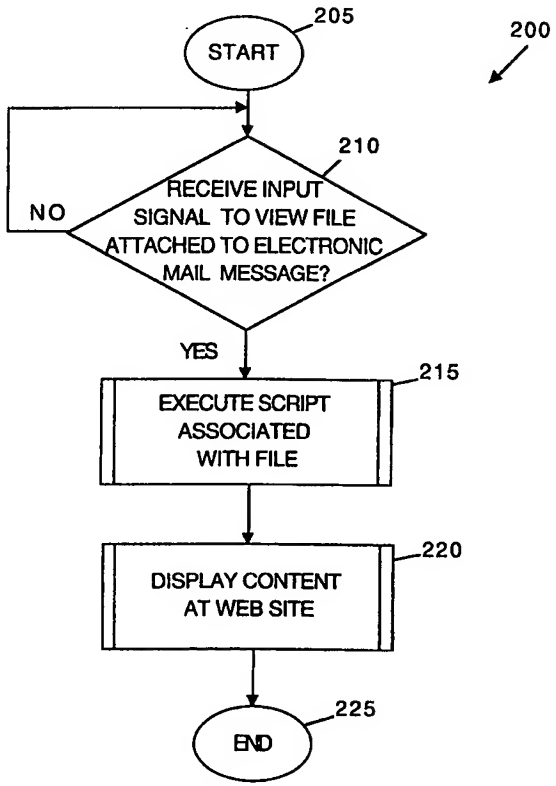
200
205
START
210
RECEIVE INPUT SIGNAL TO VIEW FILE ATTACHED TO ELECTRONIC MAIL MESSAGE?
NO
YES
215
EXECUTE SCRIPT ASSOCIATED WITH FILE
220
DISPLAY CONTENT AT WEB SITE
225
END

Fig. 2

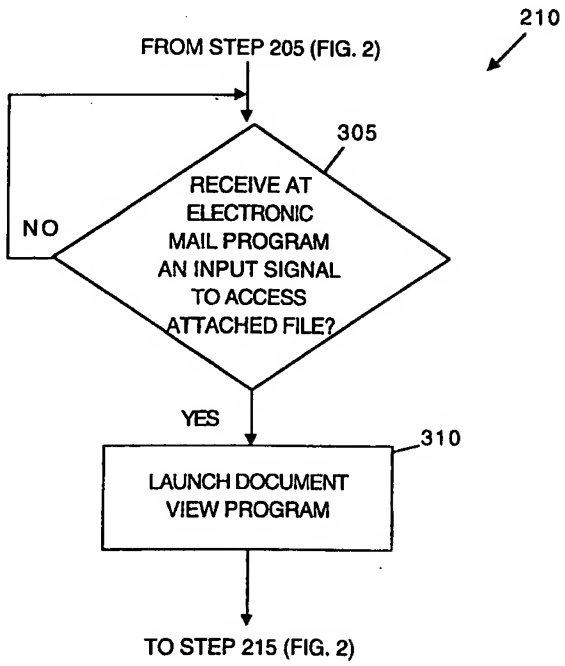
210
FROM STEP 205 (FIG. 2)
305
RECEIVE AT ELECTRONIC MAIL PROGRAM AN INPUT SIGNAL TO ACCESS ATTACHED FILE?
NO
YES
310
LAUNCH DOCUMENT VIEW PROGRAM
TO STEP 215 (FIG. 2)

Fig. 3

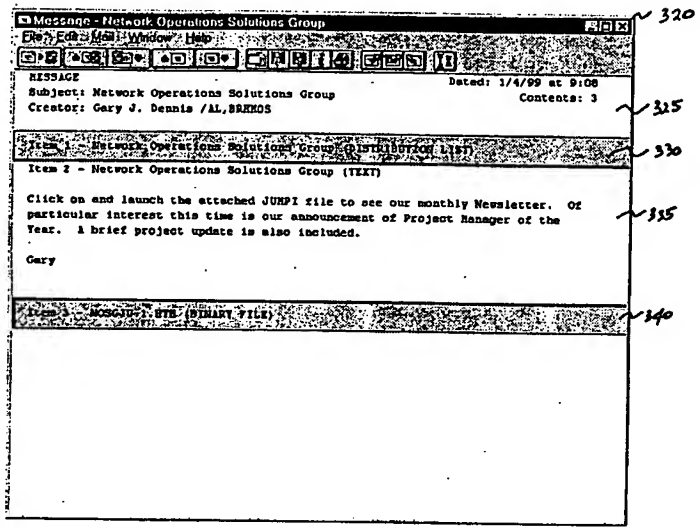
Message - Network Operations Solutions Group
File Edit View Window Help
MESSAGE
Subject: Network Operations Solutions Group
Creator: Gary J. Dennis /AL,BREMOS
Dated: 1/4/99 at 9:08
Contents: 3
Item 1 - Network Operations Solutions Group (DISTRIBUTION LIST)
Item 2 - Network Operations Solutions Group (TEXT)
Click on and launch the attached JUMPI file to see our monthly Newsletter. Of particular interest this time is our announcement of Project Manager of the Year. A brief project update is also included.
Gary
320
325
330
335
340

Fig. 3A

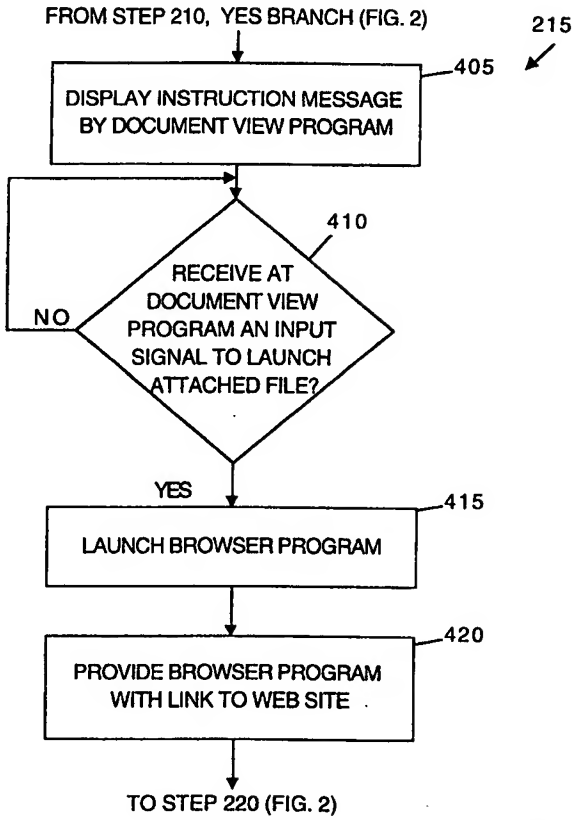
FROM STEP 210, YES BRANCH (FIG. 2)
215
405
DISPLAY INSTRUCTION MESSAGE BY DOCUMENT VIEW PROGRAM
410
RECEIVE AT DOCUMENT VIEW PROGRAM AN INPUT SIGNAL TO LAUNCH ATTACHED FILE?
NO
YES
415
LAUNCH BROWSER PROGRAM
420
PROVIDE BROWSER PROGRAM WITH LINK TO WEB SITE
TO STEP 220 (FIG. 2)

Fig. 4

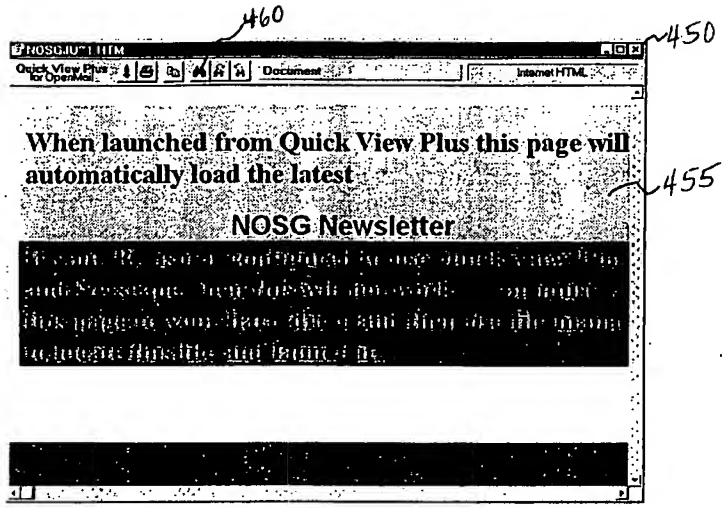
460
450
455
When launched from Quick View Plus this page will automatically load the latest
NOSG Newsletter

Fig. 4A

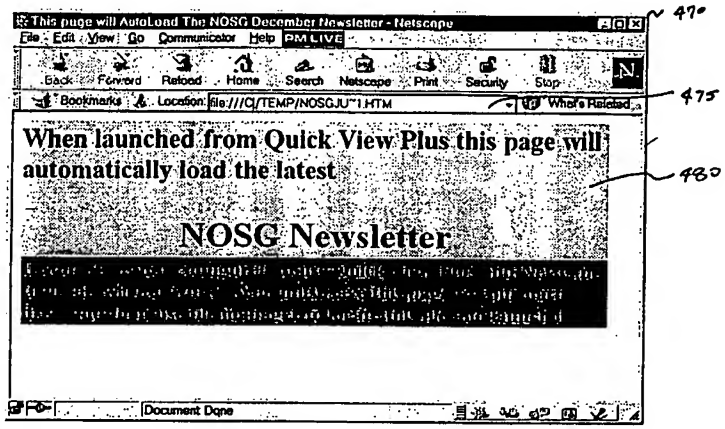
470
475
480
When launched from Quick View Plus this page will automatically load the latest
NOSG Newsletter
Document Done

Fig. 4B

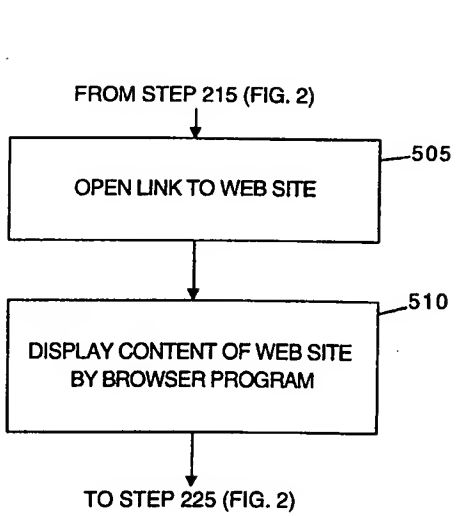
220
FROM STEP 215 (FIG. 2)
OPEN LINK TO WEB SITE
505
DISPLAY CONTENT OF WEB SITE BY BROWSER PROGRAM
510
TO STEP 225 (FIG. 2)

Fig. 5

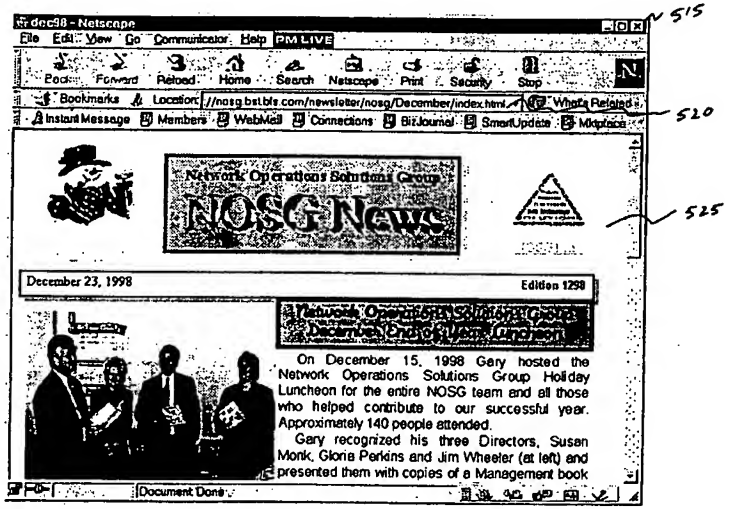
dec98 - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Stop
Bookmarks Location: //nosg.bstbls.com/newsletter/nosg/December/index.html
What's Related
Instant Message Members WebMail Connections BitJournal SmartUpdate Mktplace
Network Operations Solutions Group
NOSG News
December 23, 1998
Edition 1298
On December 15, 1998 Gary hosted the Network Operations Solutions Group Holiday Luncheon for the entire NOSG team and all those who helped contribute to our successful year. Approximately 140 people attended.
Gary recognized his three Directors, Susan Monk, Gloria Perkins and Jim Wheeler (at left) and presented them with copies of a Management book
Document Done
515
520
525

Fig. 5A

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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International Bureau

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(71) Applicant *(for all designated States except US)*: BELLSOUTH INTELLECTUAL PROPERTY CORPORATION [US/US]; Suite 510, 824 Market Street, Wilmington, DE 19801 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: DENNIS, Gary, J. [US/US]; 1145 Vintage Club, Duluth, GA 30097 (US).

(74) Agents: NICHOLS, A., Shane et al.; Jones & Askew, LLP, 2400 Monarch Tower, 3424 Peachtree Road, N.E., Atlanta, GA 30326 (US).

(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

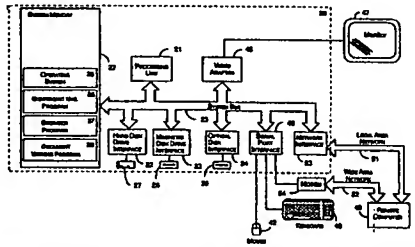
(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*

(88) Date of publication of the international search report:
7 December 2000

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND SYSTEM FOR PUBLISHING AN ELECTRONIC FILE ATTACHED TO AN ELECTRONIC MAIL MESSAGE



(57) Abstract: Publishing content associated with an electronic file attached to an electronic mail message by executing instructions contained in the electronic mail attachment and accessing the content at a remote computer server identified by the attached file. The attached file includes computer-executable instructions, such as a computer program or script, which include an identifier for a remote server connected to a distributed computer network. This identified remote server typically hosts a web site containing content intended for viewing by the recipient of the electronic mail message. In response to launching the attached file of the electronic mail message with a viewer program, a browser program can be opened to enable the recipient to view the content of the identified remote server, typically a web site on an intranet or the global Internet. This supports the communication of electronic content by using an electronic mail message to transport an electronic file attachment having instructions that, when executed by the recipient's computer, enable the recipient to view the electronic content by accessing a server computer connected to distributed computer network.

WO 00/45321 A3

INTERNATIONAL SEARCH REPORT

Int Ional Application No
PCT/US 00/02398

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ, IBM-TDB, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 815 663 A (UOMINI) 29 September 1998 (1998-09-29) column 2, line 20 - line 38 column 3, line 8 -column 6, line 42	1-7
X	US 5 771 355 A (KUZMA) 23 June 1998 (1998-06-23) column 1, line 23 - line 52 column 4, line 52 -column 7, line 47	1-7
X	EP 0 593 384 A (INTERNATIONAL BUSINESS MACHINES CORPORATION) 20 April 1994 (1994-04-20) column 1, line 22 - line 54 column 3, line 13 -column 5, line 37	1-7

-/--

[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
16 August 2000	07/09/2000

Name and mailing address of the ISA
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NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer
Abram, R

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INTERNATIONAL SEARCH REPORT

Intl. Jonal Application No
PCT/US 00/02398

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	"On-Demand Retrieval of Attached File in Mail System" IBM TECHNICAL DISCLOSURE BULLETIN, vol. 41, no. 1, January 1998 (1998-01), page 623 XP000772234 Armonk, NY, US the whole document	1-7

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intl. Jonal Application No
PCT/US 00/02398

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5815663	A	29-09-1998	NONE		
US 5771355	A	23-06-1998	NONE		
EP 0593384	A	20-04-1994	US	5418908 A	23-05-1995
			DE	69327761 D	09-03-2000
			DE	69327761 T	13-07-2000
			JP	2565647 B	18-12-1996
			JP	6195277 A	15-07-1994

Form PCT/ISA/210 (patent family annex) (July 1992)

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

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(51) International Patent Classification 6 : G06F 17/60, H04M 3/50

A1

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09/092,132 5 June 1998 (05.06.98) US

(71) Applicant: TELEFONAKTIEBOLAGET LM ERICSSON [SE/SE]; S-126 25 Stockholm (SE).

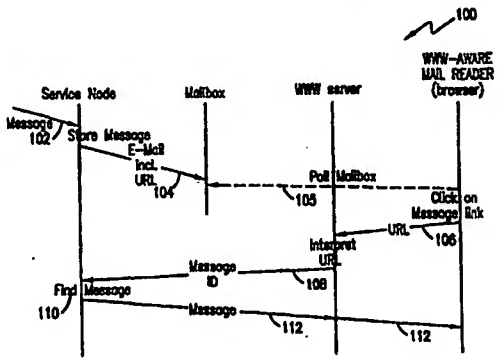
(72) Inventors: ERIKSSON, Michael; Barks Väg 12, 2trp, S-170 73 Solna (SE). BÅGE, Göran; Byvägen 10, S-133 34 Saltsjö-Baden (SE). DANNE, Anders; Kastrupgatan 12, S-164 41 Kista (SE).

(74) Agent: ERICSSON RADIO SYSTEMS AB; Common Patent Dept., S-164 80 Stockholm (SE).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: METHOD AND APPARATUS FOR ACCESSING AND RETRIEVING MESSAGES



(57) Abstract

A method and apparatus are disclosed in which a Uniform Resource Locator, which pinpoints an electronic message storage address or location, is embedded in or attached to an e-mail notification message sent to an intended recipient. Once notified, the intended recipient, in just one step, uses a WWW-aware mail reader (browser) to click on a link in the notification message window. The mail reader can thereby directly access the message storage location and retrieve the message for viewing or listening. In order to ensure that the embedded or attached Uniform Resource Locator is valid and has been received from a bona fide source, the Uniform Resource Locator can be tagged with a random encryption key. Also, an intended recipient of an electronically stored message can interactively elect to have the message delivered via a telephone connection instead of a data network.

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CM	Cameroon	KR	Republic of Korea	PT	Portugal		
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CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

METHOD AND APPARATUS FOR ACCESSING AND RETRIEVING MESSAGES

BACKGROUND OF THE INVENTION

Technical Field of the Invention

The present invention relates in general to the telecommunications field and, in particular, to methods and apparatuses for use in accessing and retrieving messages in response to e-mail notifications.

Description of Related Art

Most modern day telecommunication systems contain message centers, which are typically hardware-based facilities used to store voice messages, facsimile messages, e-mail messages, etc. These messages can be accessed and retrieved in a number of different ways that depend on the type of message stored. For example, a telephone can be used to retrieve a voice mail message from a voice mail message center, while a facsimile message is typically accessed and retrieved using a digital processor which is executing specialized facsimile software.

Digital processing systems that are executing specialized software programs are also used to access and retrieve e-mail messages from message centers (commonly referred to as "mailboxes"). These processing systems can take a number of different forms. For example, in a local area network (LAN), e-mail messages can be transferred between network users under the control of a centralized network server. Typically, the network server is specialized software, which is executed by a digital processor to perform the e-mail message transmission, storage, notification, accessing and receiving functions. The hardware that supports the network server provides the memory storage locations that comprise the network's message center or mailbox.

Essentially, there are numerous types of e-mail systems in use on LANs, wide area networks (WANs), mainframe systems, and public data networks. For example, a number of e-mail systems are in use that can transfer messages over the Internet.

These systems typically interface with the Internet in accordance with a standard message protocol called the "Simple Mail Transfer Protocol" (SMTP). The SMTP is an e-mail transfer protocol used primarily on the Internet, UNIX-based systems, and Transmission Control Protocol/Internet Protocol (TCP/IP) networks. This protocol is normally used when sending e-mail messages created by one user's mail software program (running on a host computer) to a recipient's mailbox. The SMTP defines the control messages used in sending the e-mail message, including such functions as verifying that the connection is proper, identifying the sender, negotiating the transmission parameters, and transmitting the message. Other known protocols are used when an e-mail message is retrieved from a mailbox and transferred to a recipient's mail software program. A more detailed description of the standard Internet (TCP/IP) message protocols can be found in the commonly known "Request For Comments" (RFCs).

One way that an Internet user can access and retrieve an e-mail message via the Internet is to use a World-Wide Web (WWW)-aware mail reader. For example, the Microsoft Internet Explorer and Netscape Navigator (commonly referred to as "browsers") are typical WWW-aware mail readers, which are software programs that operate on a user's computer. The mail reader can be used to access and retrieve documents (e.g., e-mail messages) from sites on the Internet and display them at the user's computer. An e-mail message is just one type of document that can be accessed and retrieved by such a mail reader, but the document retrieved in this instance is composed of text files.

The conventional method used to transfer e-mail messages from senders to recipients is called a "store and forward" method. When a user composes an e-mail message on a local computer, the user includes the address of the intended recipient. The user's return address is electronically affixed to the message. When the message is transmitted over the Internet, the intended recipient's address provides enough information about the message's final destination so that the various computers encountered on the Internet, each of which temporarily stores and then forwards the message, can determine where the message should go next. The message is transferred from computer to computer until it reaches its final destination, which is typically a

mailbox provided by the intended recipient's service provider. The service provider stores the incoming message in the destination mailbox. Typically, the intended recipient's mail software program polls the provider's server for new messages. These new messages can be e-mail notification messages about e-mail, voicemail, facsimile messages, missed calls, or any other type of electronic message. Once notified, the intended recipient can then take steps to retrieve the electronic message. In the case of an e-mail message, the intended recipient can start the WWW-aware mail reader and use it to follow the prescribed links to the correct e-mail message page, and then on to the message location. The mail reader can then be used to retrieve the message text for viewing at the intended recipient's computer.

More specifically, having received a notification of a new e-mail message, the typical procedure (assuming a Windows®-like environment) followed by an intended recipient to access and retrieve the new message is to start the WWW-aware mail reader and click on an e-mail icon with a mouse. The recipient then clicks on "read message" from a drop down menu. The next step is to click on the new message which is shown in the "inbox" (assuming the inbox is already selected). The new message is then retrieved by the mail reader for viewing at the recipient's monitor.

Similarly, having received an e-mail notification of a new voicemail message, the intended recipient typically dials the voicemail mailbox number, and inputs a series of numbers to access the voicemail message. However, a significant problem that arises when such access and retrieval procedures are followed is that they require numerous manual steps to complete, which results in a substantial and unnecessary expenditure of time and system resources.

The above-described process for using a WWW browser to access electronic messages via the Internet can have further disadvantages. For example, if the message to be retrieved is large, as is typical for voice and facsimile messages, two potential problems arise: transmission of the message to the intended recipient's terminal can require a disadvantageously long transmission time; and the recipient's terminal must have enough memory available to accommodate the entire message. Although streaming can be used for immediate response and to reduce memory use, inadequate bandwidth may prove to be a bottleneck when receiving voice messages.

It is therefore desirable to: reduce the time it takes to retrieve an electronic message; facilitate a user's access to an electronic message once notification of the message has been received; and minimize the use of system resources in accessing electronic messages.

It is further desirable to avoid the aforementioned disadvantages of using a browser to access long electronic messages.

The present invention provides a method and apparatus for embedding or attaching a Uniform Resource Locator (URL) which pinpoints the electronic message storage address or location, in or to the e-mail notification message sent to the intended recipient. Once notified, the intended recipient can, in just one step, use a WWW-aware mail reader to click on a link in the notification message window. The mail reader can thereby directly access the message storage address or location and retrieve the message for viewing or listening by the recipient. In order to ensure that the embedded or attached URL is valid and has been received from a bona fide source, the URL can be tagged with a random encryption key.

The invention also permits an intended recipient of a stored electronic message to interactively elect to have the message delivered via a telephone connection instead of a data network.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a simplified block diagram of an exemplary system that can be used to implement the method and apparatus of the present invention.

FIGURE 2 is a sequence diagram that illustrates an exemplary method that can be used for accessing and retrieving electronic messages from a public (or private) data network, in accordance with the present invention.

FIGURE 3 shows an example of an e-mail notification message with an embedded URL, in accordance with the present invention.

FIGURE 4 is a block diagram of an exemplary system in which the present invention may be implemented.

FIGURE 5 is a flow diagram illustrating a process according to the present invention for accessing a stored electronic message via a message page and receiving the message via a telephone connection.

FIGURE 6 illustrates an exemplary message page according to the invention.

FIGURE 7 illustrates an entry from the FIGURE 6 message page in greater detail.

FIGURE 8 illustrates a window with which a message recipient can interactively designate a destination telephone number for delivery of a message.

FIGURE 9 is a flow diagram which illustrates exemplary operations of the browser of FIGURE 4.

FIGURE 10 is a sequence diagram illustrating an exemplary procedure according to the invention for effecting telephone delivery of an electronic message accessed from a message page.

FIGURE 11 is a flow diagram which illustrates exemplary operations of the message service node of FIGURE 4.

DETAILED DESCRIPTION OF THE DRAWINGS

Essentially, in a preferred embodiment, the time and resource problems associated with using a WWW-aware mail reader (e.g., browser) to follow the links to the proper message location are resolved by embedding (or attaching) a URL, which pinpoints the message storage address, in (or to) the e-mail notification message sent to the intended recipient. Once notified, the intended recipient can, in just one step, use the WWW-aware mail reader to click on a link in the notification message window. The mail reader can thereby directly access the electronic message location and retrieve the message for viewing or listening. In order to ensure that the embedded or attached URL is valid and has been received from a bona fide source, the URL can be tagged with a security key, such as, for example, a random encryption key. This security key is used when the message is to be retrieved. The key can be a "long" sequence of random bits, an encrypted bit string, or any appropriate conventional type of security key. The key can be randomly generated using, for example, an "RSA" random key generation algorithm.

More specifically, FIGURE 1 is a simplified block diagram of an exemplary system that can be used to implement the method and apparatus of the present invention. In the preferred embodiments, the system (10) can include, for example, a service node 18 connected for two-way data communications with a public (or private) data network (e.g., LAN, WAN, Internet, etc.) 14. Node 18 can be, for example, a host processor, communications controller, server, workstation, personal computer, digital switch, gateway controller, or any other appropriate network-connected device that can function to transmit, receive and store e-mail and other electronic message data. In the preferred embodiments, service node 18 can be, for example, a mobile services switching center (MSC), a Gateway MSC (GMSC), or a home location register (HLR) in a Public Land Mobile Network (PLMN). In a different embodiment, service node 18 can be a central exchange in a wireline network such as a Public Switched Telephone Network (PSTN), or an MSC in a packet switched data network.

A user (e.g., message recipient) can communicate with the network 14 by the use of specialized software (12) running on a digital processor. In the preferred embodiments, the software is preferably a WWW-aware mail reader (e.g., browser, such as, for example, Microsoft's Internet Explorer or Netscape's Navigator), which can run on the recipient's personal computer. Alternatively, the mail reader can reside and run in any appropriate wireless terminal (e.g., a fixed or mobile terminal in a PLMN). The network 14 is connected for two-way data communications with a network server 16. In the preferred embodiments, server 16 is preferably a conventional WWW server.

FIGURE 2 is a sequence diagram that illustrates an exemplary method that can be used for accessing and retrieving electronic messages from a public (or private) data network, in accordance with a preferred embodiment of the present invention. Referring to FIGURES 1 and 2, the method (100) begins at step 102, when a new electronic message arrives and is stored in the service node 18 (e.g., at a specific location in a message center in the service node). At step 104, the service node 18 embeds or appends a URL in or to an e-mail notification message, which is to notify the intended recipient that a new electronic message has arrived and identify the

precise address or location of the stored message in that network (e.g., in the service node 18). The e-mail notification message is then transferred to the intended recipient's mailbox. This notification message is eventually noticed by the recipient's WWW-aware mail reader program 12. An example of an e-mail notification message with such an embedded URL is shown in FIGURE 3. The URL, for example, can be a link to a stored e-mail message, voicemail message, facsimile message, a link to send a facsimile message to a certain facsimile machine, a link to set up a phone call to a party who sent a voicemail message, or it can represent a URL-to-call back function implemented in a service node.

At step 105, the intended recipient's WWW-aware mail reader program 12 polls the mailbox and receives the notification e-mail (when the recipient's personal computer is on-line). Once notified about the new message, the recipient can activate the mail reader (12) and click on the message link in the notification window (step 106). At step 108, the WWW server 16 interprets the message identification and location information in the URL, and transfers the new message identification to the service node 18. At step 110, the service node 18 uses the message identification and location information (e.g., a link) to find the message at its precise location in the service node 18. At step 112, the service node transmits the new message to the WWW server 16, where it can be viewed via the recipient's web browser 12 (e.g., e-mail or a facsimile message) or heard (e.g. voicemail).

FIGURE 4 illustrates diagrammatically a system similar to that of FIGURE 1, but differing from FIGURE 1 in that the service node 18 is coupled to a conventional telecommunication station, such as a telephone or facsimile machine 41, via the public switched telephone network (PSTN), and is also coupled to a conventional wireless telecommunication device, such as a wireless telephone or facsimile machine, via a public land mobile radio network (PLMR). Using the example arrangement of FIGURE 4, a message recipient (or user) can use the web browser 12 to access an electronic message stored in the service node 18, and also direct the service node 18 to deliver the electronic message via a telephone link (PSTN or PLMR) to any of the devices indicated at 41 and 43. For example, the message recipient can direct the service node 18 to deliver the electronic message to a facsimile machine via PSTN.

As another example, the message recipient can direct the service node 18 to deliver the electronic message to a wireless telephone via PLMR.

FIGURE 5 shows one example of the aforementioned process of using the browser 12 to access an electronic message and to arrange to receive the message via a telephone connection to, for example, a telephone or facsimile machine. It is first determined at 51 whether a message has been received. For example, the decision at 51 would be answered yes when the recipient's browser 12 polls the recipient's mailbox and receives a new e-mail notification message. Once notified about the new message, the recipient can, at 52, use the browser to follow the prescribed links to the correct message page, as is conventional. FIGURE 6 illustrates one example of a message page displayed to the recipient by the browser 12. As shown in FIGURE 6, the message page (or message web page) includes a plurality of message entries which respectively provide information about a plurality of the recipient's messages.

FIGURE 7 illustrates in more detail an example of the message entries shown in FIGURE 6. As illustrated in FIGURE 7, a typical message entry according to the present invention includes an information portion 71 which displays, for example, the sender of the message, the date and time that the message was received, the type of message (e.g., e-mail, voice mail, facsimile) and the length of the message. The message entry also includes a deliver button (or link) 72, a deliver by phone button (or link) 73 and a skip button 74. If the message recipient clicks on the deliver button 72, then the message will be delivered via the data network 14 of FIGURE 4 in conventional fashion. If the message recipient clicks on the skip button 74, then the message will be skipped for the time being. If the message recipient clicks on the deliver by phone button 73, then the web browser 12 will send to the service node 18 a communication including the identification of the message to be delivered along with a URL which designates the telephone number of the destination to which the service node is to deliver the message via telephone.

Referring again to FIGURE 5, the step at 53 of choosing the phone link in the message page corresponds to the above-described clicking on the deliver by phone button (or link) 73. After the phone link has been chosen in the message page (i.e., button 73 has been clicked on), at 54 the message is received at the designated

telephone, facsimile machine or other telecommunication station. Thereafter, notification of the next new message is awaited at 51.

The decision at 53 may depend on the message length shown in the FIGURE 7 message entry. That is, if the message is relatively long (e.g., exceeds an empirically predetermined length), then phone delivery may be chosen to avoid the above-described problems created by long messages. If phone delivery is not chosen at 53, then the data network is used for delivery at 56 and 57, as is conventional.

When the recipient clicks on the deliver by phone button 73 of FIGURE 7, the URL that is sent to the service node 18 via the network 14 will designate a predetermined (and previously programmed) telephone number to which the message is to be delivered by the service node. However, it is desirable to have the capability of selecting different telephone number destinations for delivery of different messages. Therefore, in another embodiment of the invention, when the message recipient clicks on the deliver by phone button 73, the browser 12 can present to the message recipient the exemplary window illustrated in FIGURE 8. If the recipient wishes to have the message delivered to a telephone number other than a predetermined default telephone number, then the recipient types in the desired telephone number at 81 and clicks on the deliver button (or link) 82. In this instance, the destination URL produced by the browser 12 will designate the telephone number at 81 as the desired destination for delivery of the message. If the recipient simply clicks on the deliver button 82 without entering a telephone number at 81, then the destination URL will designate the default telephone number to be the delivery destination, as described above with respect to FIGURE 7.

FIGURE 9 is a flow diagram which illustrates exemplary operations of the browser 12 in executing the deliver by phone options of FIGURES 7 and 8. The browser initially waits at 91 for the recipient to click on the deliver by phone button 73. When the recipient has clicked on the deliver by phone button 73, either the default telephone number is obtained at 94 (see broken line path), or the window of FIGURE 8 is presented to the recipient, in which case the browser determines at 92 whether or not a telephone number has been supplied at 81 in FIGURE 8. If so, then the phone number from 81 is obtained at 93. If no telephone number is supplied at 81

in FIGURE 8, then the default number is used at 94. Thereafter, at 95, either the default telephone number or the recipient-supplied telephone number is designated in the URL and, at 96, the message ID and URL are sent via data network 14 to the message node 18.

FIGURE 10 is a sequence diagram which illustrates an exemplary sequence that permits the message recipient to receive the message via one of the PSTN or PLMR of FIGURE 4. In FIGURE 10, the message is received and stored in the service node in conventional fashion at 120. When the recipient clicks on the phone link (for example, either button 73 of FIGURE 7 or button 82 of FIGURE 8) the browser at 121 transmits to the server 16 (see FIGURE 4) via the network 14 message identification information and the destination URL designating the desired telephone number to which the message is to be delivered. At 122, the server relays the information to the service node via the network 14. The service node interprets the URL to determine the desired call destination, and then sets up a suitable telephone connection to one of the devices 41 and 43 (see FIGURE 4) via one of PSTN and PLMR. Once the call has been set up at 123 and 124, the service node delivers the message via the telephone connection at 125.

FIGURE 11 illustrates exemplary operations of the service node 18 in response to a request to deliver a message stored in the service node. If telephone delivery is not selected at 131, then the service node performs the conventional delivery function at 132. If telephone delivery has been selected at 131, then it is determined at 133 whether or not the stored message is a facsimile message. If so, then the service node calls the selected facsimile machine and delivers the facsimile message at 134. If the message is not a facsimile message, it is then determined at 135 whether the message is a voice message. If so, then the service node calls the desired telephone and delivers the voice message at 136.

If the message is neither a facsimile message (133) nor a voice message (135), then the message is assumed to be e-mail or a text file (or files), so the service node will perform a suitable conversion of the message to voice (139) or facsimile (138) depending whether the destination station is a facsimile receiver or a voice receiver (137). Thereafter, the service node 18 calls and delivers either a facsimile message at

134 or a voice message at 136. After either a voice message or a facsimile message is delivered at 136 or 134, the service node waits at 131 until the next request for telephone delivery is received from network 14.

Although exemplary embodiments of the present invention have been described above in detail, this does not limit the scope of the invention, which can be practiced in a variety of embodiments.

WHAT IS CLAIMED IS:

1. A method for use in accessing a message in a message storage location, comprising the steps of:

generating a notification message to notify an intended recipient of a receipt of said message;

appending a uniform resource locator having a security key to said notification message, said uniform resource locator identifying said message storage location; and

transferring said notification message including said uniform resource locator to said intended recipient.

2. The method of Claim 1, further comprising the steps of accessing said message in said message storage location; and

retrieving said message for use by said intended recipient.

3. The method of Claim 1, wherein said message comprises a text message.

4. The method of Claim 1, wherein said message comprises an e-mail message.

5. The method of Claim 1, wherein said message comprises a voice message.

6. The method of Claim 1, wherein said message comprises a facsimile message.

7. The method of Claim 1, wherein said message includes a URL-to-call-back function on a WWW server.

8. The method of Claim 2, wherein said accessing and retrieving steps are performed with a WWW-aware mail reader.

9. The method of Claim 1, wherein said uniform resource locator includes a security key.

10. The method of Claim 8, wherein said WWW-aware mail reader resides in a wireless terminal.

11. The method of Claim 1, wherein said appending step comprises attaching said uniform resource locator to said notification message.

12. The method of Claim 1, wherein said appending step comprises embedding said uniform resource locator in said notification message.

13. The method of Claims 1-10, wherein said notification message comprises an e-mail message.

14. A system for use in accessing a message in a message storage location, comprising:

means for appending a uniform resource locator having a security key to a notification message, said uniform resource locator identifying said message storage location;

means for transferring said notification message to an intended recipient; and

means for accessing said message in said message storage location using said uniform resource locator.

15. The system of Claim 14, further comprising means for retrieving said message for display to said intended recipient.

16. The system of Claim 14, wherein said message comprises a text message.

17. The system of Claim 14, wherein said message comprises an e-mail message.

18. The system of Claim 14, wherein said message comprises a voice message.

19. The system of Claim 14, wherein said message comprises a facsimile message.

20. The system of Claim 14, wherein said message includes a URL-to-call back function on a WWW server.

21. The system of Claim 14, wherein said notification message comprises an e-mail message.

22. The system of Claim 14, wherein said means for accessing said message includes means for running a software browser.

23. The system of Claim 14, wherein said uniform resource locator includes a security key.

24. The system of Claim 14, wherein said means for accessing said message includes a wireless terminal.

25. A method of retrieving a message that is stored electronically at a storage apparatus, comprising:

receiving via a data network, at a notification location physically remote from the storage apparatus, a notification that the message is available to be retrieved from the storage apparatus; and

responsive to receipt of the notification at the notification location, sending from the notification location to the storage apparatus, via the data network, a

communication indicating that the message is to be delivered via a telephone connection.

26. The method of Claim 25, including specifying a destination telephone number which identifies a telecommunication station to which the message is to be delivered via the telephone connection.

27. The method of Claim 26, wherein said specifying step includes providing in the communication a uniform resource locator that designates the destination telephone number.

28. The method of Claim 26, wherein said specifying step includes using a WWW browser to specify the destination telephone number.

29. The method of Claim 26, wherein said telecommunication station is a voice receiving station, and including delivering the message to the voice receiving station.

30. The method of Claim 29, including converting the stored message into a voice message and delivering the converted voice message to the voice receiving station.

31. The method of Claim 26, wherein said telecommunication station is a facsimile receiving station, and including delivering the message to the facsimile receiving station via the telephone connection.

32. The method of Claim 31, including converting the stored message into a facsimile message, and delivering the converted facsimile message to the facsimile receiving station via the telephone connection.

33. The method of Claim 25, including determining the message length of the stored message, said sending step including sending the communication responsive to the message length exceeding a predetermined length.

34. The method of Claim 25, wherein the stored message is a voice message.

35. The method of Claim 25, wherein the stored message is a facsimile message.

36. The method of Claim 25, wherein the stored message is an e-mail message.

37. The method of Claim 25, wherein the telephone connection includes a wireless connection.

38. An apparatus for use in retrieving a message stored electronically at a physically remote storage apparatus, comprising:

means for receiving via a data network a notification that the message is available to be retrieved from the storage apparatus; and

means responsive to the notification for sending to the storage apparatus via the data network a communication indicating that the message is to be delivered via a telephone connection.

39. The apparatus of Claim 38, including means for permitting a user to specify a destination telephone number which identifies a telecommunication station to which the message is to be delivered via the telephone connection.

40. The apparatus of Claim 39, wherein the telecommunication station includes a facsimile receiver.

41. The apparatus of Claim 39, wherein the telecommunication station includes a voice receiver.

42. The apparatus of Claim 39, wherein said communication includes a uniform resource locator that designates said destination telephone number.

43. The apparatus of Claim 38, including means for indicating whether the stored message is a voice message.

44. The apparatus of Claim 38, including means for indicating whether the stored message is a facsimile message.

45. The apparatus of Claim 38, including means for indicating a message length of the stored message.

46. The apparatus of Claim 38, wherein said telephone connection includes a wireless connection.

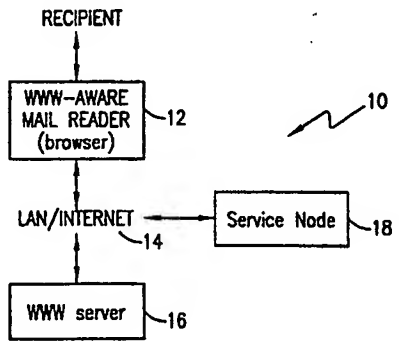

FIG. 1

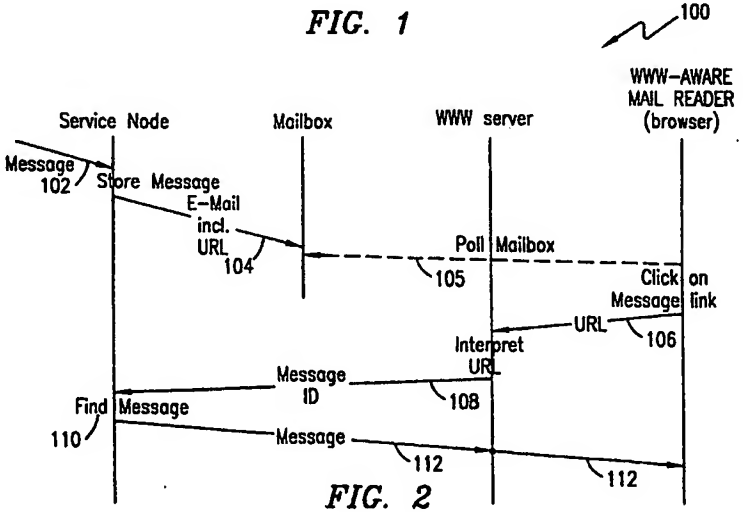

FIG. 2

Listen:
http://okanagan.ericsson.se:8000/cgi-bin/get-mail.pe?UID=erabage&REF=OFNzr&TY:
Call:
http://okanagan.ericsson.se:8000/cgi-bin/make-call.pe?UID=erabage&nr=1003

FIG. 3

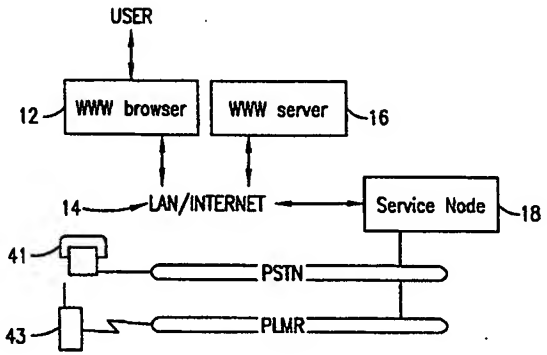
USER
12
WWW browser
WWW server
16
14
LAN/INTERNET
Service Node
18
41
PSTN
43
PLMR

FIG. 4

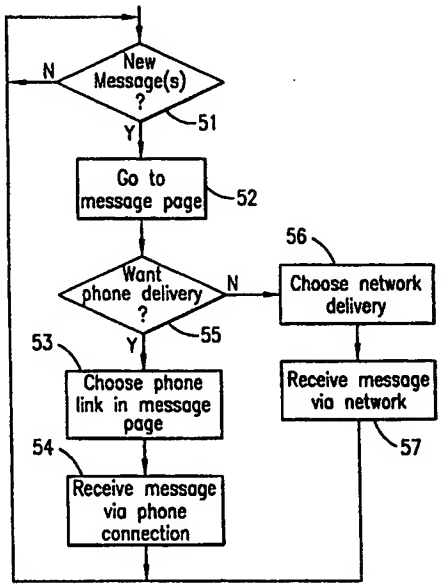
New Message(s) ?
N
Y
51
Go to message page
52
Want phone delivery ?
N
Y
55
56
Choose network delivery
Receive message via network
57
53
Choose phone link in message page
54
Receive message via phone connection

FIG. 5

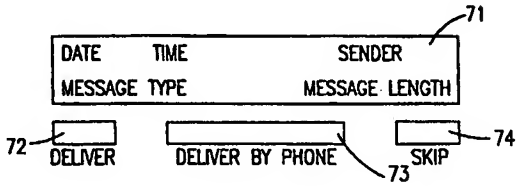

FIG. 7

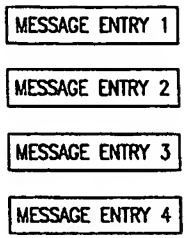

FIG. 6

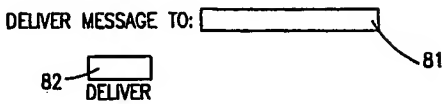

FIG. 8

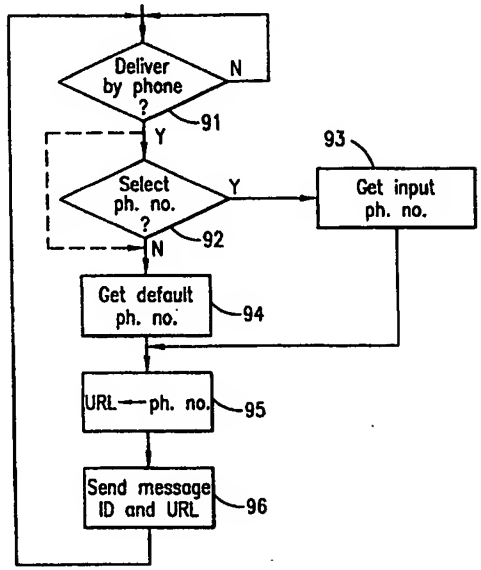

FIG. 9

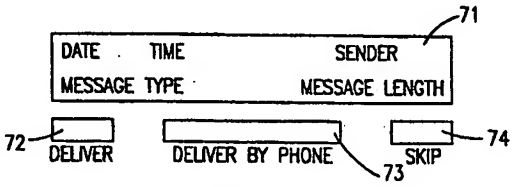

FIG. 7

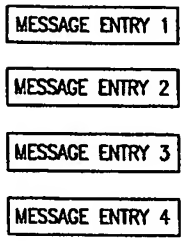

FIG. 6

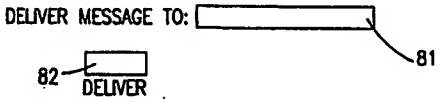

FIG. 8

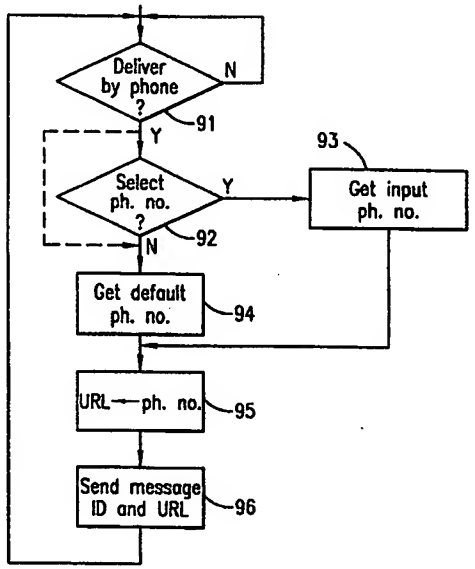

FIG. 9

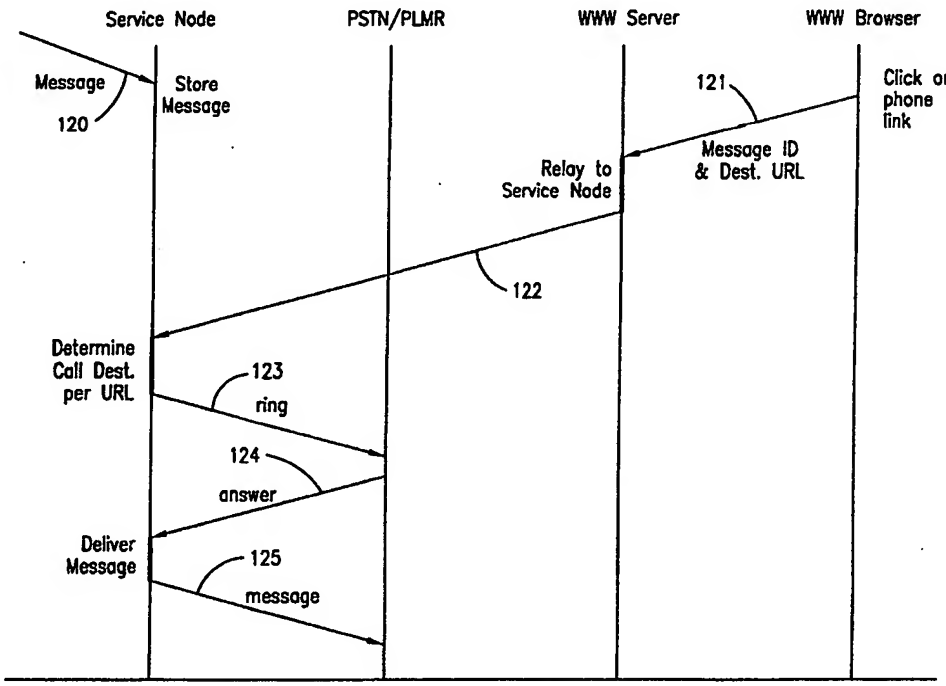
Service Node
PSTN/PLMR
WWW Server
WWW Browser
Message
120
Store Message
121
Click on phone link
Message ID & Dest. URL
Relay to Service Node
122
Determine Call Dest. per URL
123
ring
124
answer
Deliver Message
125
message

FIG. 10

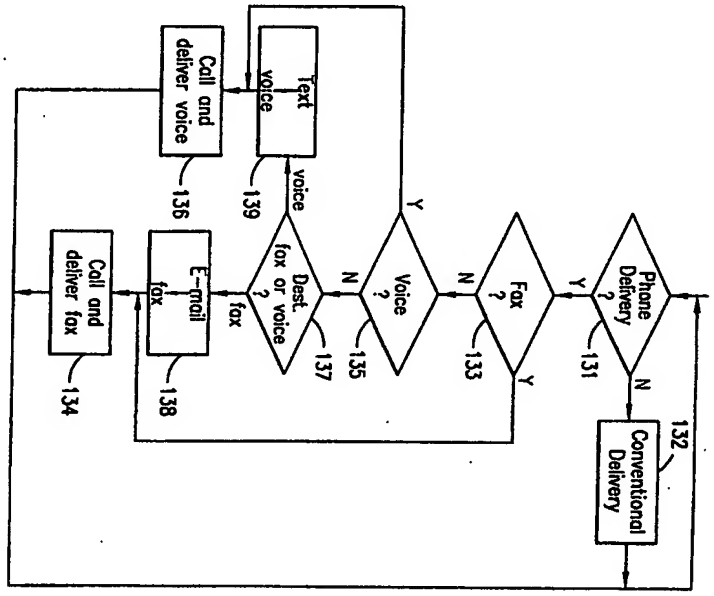
Call and deliver voice
136
Text voice
139
voice
Y
Phone Delivery ?
131
N
Conventional Delivery
132
Call and deliver fax
134
E-mail fax
138
fax
Dest. fax or voice ?
137
N
Voice ?
135
N
Fax ?
133
Y
Y

FIG. 11

INTERNATIONAL SEARCH REPORT

International Application No
PCT/SE 98/01140

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/60 H04M3/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 96 31826 A (HIGLEY THOMAS K) 10 October 1996 see page 1, line 1 - page 5, line 17	1-4,8, 11-17, 21,25,38
A	WO 87 07801 A (AMERICAN TELEPHONE & TELEGRAPH) 17 December 1987 see page 1, line 1 - page 2, line 16; claims 1,5,6,9,10; figures 1,3,4	1,14,25, 26,29, 30,34, 36,38, 41,43
P,A	EP 0 794 650 A (IBM) 10 September 1997 see column 1, line 1 - column 5, line 31	1,14
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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29 September 1998	06/10/1998

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Fournier, C

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INTERNATIONAL SEARCH REPORT

International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

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